

**msi**



# **G41M-P25/G41M-S02**

**MOTHERBOARD**

MODEL NO. MS-7592

**USER GUIDE**

**msi™**



## TOP QUALITY & STABILITY

- Most Stable Components with Top Quality



- All Military Class III components have passed the following MIL-STD-810G tests:

- Low Pressure Test
- High Temperature Test
- Low Temperature Test
- Temperature Shock Test
- Humidity Test
- Vibration Test
- Shock Test

- Military Class III Levels: More Stars for Higher Ranks

Military Class III Level	Solid CAP	SFC	Hi-c CAP	DrMOS II
5 Stars	★★★★★	●	●	●
4 Stars	★★★★	●	●	●
3 Stars	★★★	●	●	

[www.msi.com](http://www.msi.com)

**FCC-B RADIO FREQUENCY INTERFERENCE STATEMENT**

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the measures listed below.



- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

**Notice 1**

The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

**Notice 2**

Shielded interface cables and AC power cord, if any, must be used in order to comply with the emission limits.

*VOIR LA NOTICE D'INSTALLATION AVANT DE RACORDER AU RESEAU.*



Micro-Star International  
MS-7592

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- 1) this device may not cause harmful interference, and
- 2) this device must accept any interference received, including interference that may cause undesired operation.

**PART NUMBER**

G52-75921XG-Q13

## COPYRIGHT NOTICE

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## REVISION HISTORY

Revision	Revision History	Date
V6.0	For PCB 6.x	February 2010
V6.1	For G41M-S03	April 2010
V6.2	For G41M-P23	April 2010
V6.3	For G41M-P25/ G41M-P23/ G41M-S02/ G41M-S03	April 2010
V6.4	Update JSP1 for G41M-P23	July 2010
V6.5	Update JSP1 for G41M-S03	July 2010
V6.6	Update JSP1 for G41M-P25/ G41M-S02	July 2010

## SAFETY INSTRUCTIONS

- Always read the safety instructions carefully.
- Keep this User Manual for future reference.
- Keep this equipment away from humidity.
- Lay this equipment on a reliable flat surface before setting it up.
- The openings on the enclosure are for air convection hence protects the equipment from overheating. Do not cover the openings.
- Make sure the voltage of the power source and adjust properly 110/220V before connecting the equipment to the power inlet.
- Place the power cord such a way that people can not step on it. Do not place anything over the power cord.
- Always Unplug the Power Cord before inserting any add-on card or module.
- All cautions and warnings on the equipment should be noted.
- Never pour any liquid into the opening that could damage or cause electrical shock.
- If any of the following situations arises, get the equipment checked by service personnel:
  - The power cord or plug is damaged.
  - Liquid has penetrated into the equipment.
  - The equipment has been exposed to moisture.
  - The equipment does not work well or you can not get it work according to User Manual.
  - The equipment has dropped and damaged.
  - The equipment has obvious sign of breakage.
- Do not leave this equipment in an environment unconditioned, storage temperature above 60°C (140°F), it may damage the equipment.

### CAUTION

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer.

### 警告使用者

這是甲類的資訊產品，在居住的環境中使用時，可能會造成無線電子擾，在這種情況下，使用者會被要求採取某些適當的對策。



### 廢電池請回收

For better environmental protection, waste batteries should be collected separately for recycling or special disposal.

## WEEE STATEMENT

### ENGLISH

To protect the global environment and as an environmentalist, MSI must remind you that...



Under the European Union ("EU") Directive on Waste Electrical and Electronic Equipment, Directive 2002/96/EC, which takes effect on August 13, 2005, products of "electrical and electronic equipment" cannot be discarded as municipal waste anymore and manufacturers of covered electronic equipment will be obligated to take back such products at the end of their useful life. MSI will comply with the product take back requirements at the end of life of MSI-branded products that are sold into the EU. You can return these products to local collection points.

### DEUTSCH

Hinweis von MSI zur Erhaltung und Schutz unserer Umwelt

Gemäß der Richtlinie 2002/96/EG über Elektro- und Elektronik-Altgeräte dürfen Elektro- und Elektronik-Altgeräte nicht mehr als kommunale Abfälle entsorgt werden. MSI hat europaweit verschiedene Sammel- und Recyclingunternehmen beauftragt, die in die Europäische Union in Verkehr gebrachten Produkte, am Ende seines Lebenszyklus zurückzunehmen. Bitte entsorgen Sie dieses Produkt zum gegebenen Zeitpunkt ausschließlich an einer lokalen Altgerätesammelstelle in Ihrer Nähe.

### FRANÇAIS

En tant qu'écologiste et afin de protéger l'environnement, MSI tient à rappeler ceci...

Au sujet de la directive européenne (EU) relative aux déchets des équipement électriques et électroniques, directive 2002/96/EC, prenant effet le 13 août 2005, que les produits électriques et électroniques ne peuvent être déposés dans les décharges ou tout simplement mis à la poubelle. Les fabricants de ces équipements seront obligés de récupérer certains produits en fin de vie. MSI prendra en compte cette exigence relative au retour des produits en fin de vie au sein de la communauté européenne. Par conséquent vous pouvez retourner localement ces matériels dans les points de collecte.

### РУССКИЙ

Компания MSI предпринимает активные действия по защите окружающей среды, поэтому напоминаем вам, что....

В соответствии с директивой Европейского Союза (ЕС) по предотвращению загрязнения окружающей среды использованным электрическим и электронным оборудованием (директива WEEE 2002/96/EC), вступающей в силу 13 августа 2005 года, изделия, относящиеся к электрическому и электронному оборудованию, не могут рассматриваться как бытовой мусор, поэтому производители вышеперечисленного электронного оборудования обязаны принимать его для переработки по окончании срока службы. MSI обязуется соблюдать требования по приему продукции, проданной под маркой MSI на территории ЕС, в переработку по окончании срока службы. Вы можете вернуть эти изделия в специализированные пункты приема.

**ESPAÑOL**

MSI como empresa comprometida con la protección del medio ambiente, recomienda:

Bajo la directiva 2002/96/EC de la Unión Europea en materia de desechos y/o equipos electrónicos, con fecha de rigor desde el 13 de agosto de 2005, los productos clasificados como "eléctricos y equipos electrónicos" no pueden ser depositados en los contenedores habituales de su municipio, los fabricantes de equipos electrónicos, están obligados a hacerse cargo de dichos productos al término de su período de vida. MSI estará comprometido con los términos de recogida de sus productos vendidos en la Unión Europea al final de su período de vida. Usted debe depositar estos productos en el punto limpio establecido por el ayuntamiento de su localidad o entregar a una empresa autorizada para la recogida de estos residuos.

**NEDERLANDS**

Om het milieu te beschermen, wil MSI u eraan herinneren dat....

De richtlijn van de Europese Unie (EU) met betrekking tot Vervuiling van Elektrische en Electronische producten (2002/96/EC), die op 13 Augustus 2005 in zal gaan kunnen niet meer beschouwd worden als vervuiling. Fabrikanten van dit soort producten worden verplicht om producten retour te nemen aan het eind van hun levenscyclus. MSI zal overeenkomstig de richtlijn handelen voor de producten die de merknaam MSI dragen en verkocht zijn in de EU. Deze goederen kunnen gereturneerd worden op lokale inzamelingspunten.

**SRPSKI**

Da bi zaštitili prirodnu sredinu, i kao preduzeće koje vodi računa o okolini i prirodnoj sredini, MSI mora da vas podesti da...

Po Direktivi Evropske unije ("EU") o odbačenoj elektronskoj i električnoj opremi, Direktiva 2002/96/EC, koja stupa na snagu od 13. Avgusta 2005, proizvodi koji spadaju pod "elektronsku i električnu opremu" ne mogu više biti odbačeni kao običan otpad i proizvođači ove opreme biće pruženi da uzmu natrag ove proizvode na kraju njihovog uobičajenog veka trajanja. MSI će poštovati zahtev o preuzimanju ovakvih proizvoda kojima je istekao vek trajanja, koji imaju MSI oznaku i koji su prodati u EU. Ove proizvode možete vratiti na lokalnim mestima za prikupljanje.

**POLSKI**

Aby chronić nasze środowisko naturalne oraz jako firma dbająca o ekologię, MSI przypomina, że...

Zgodnie z Dyrektywą Unii Europejskiej ("UE") dotyczącą odpadów produktów elektrycznych i elektronicznych (Dyrektywa 2002/96/EC), która wchodzi w życie 13 sierpnia 2005, tzw. "produkty oraz wyposażenie elektryczne i elektroniczne" nie mogą być traktowane jako śmieci komunalne, tak więc producenci tych produktów będą zobowiązani do odbierania ich w momencie gdy produkt jest wycofywany z użycia. MSI wypełni wymagania UE, przyjmując produkty (sprzedawane na terenie Unii Europejskiej) wycofywane z użycia. Produkty MSI będzie można zwracać w wyznaczonych punktach zbiorczych.

## **TÜRKÇE**

Çevreci özelliğiyile bilinen MSI dünyada çevreyi korumak için hatırlatır:  
Avrupa Birliği (AB) Karamamesi Elektrik ve Elektronik Malzeme Atığı, 2002/96/EC Karamamesi altında 13 Ağustos 2005 tarihinden itibaren geçerli olmak üzere, elektrikli ve elektronik malzemeler diğer atıklar gibi çöpe atılamayacak ve bu elektronik cihazların üreticileri, cihazların kullanım süreleri bittiğten sonra ürünleri geri toplamakla yükümlü olacaktır. Avrupa Birliği'ne satılan MSI markalı ürünlerin kullanım süreleri bittiğinde MSI ürünlerin geri alınması isteği ile işbirliği içerisinde olacaktır. Ürünlerinizi yerel toplama noktalarına bırakabilirsiniz.

## **ČESKY**

Záleží nám na ochraně životního prostředí - společnost MSI upozorňuje...  
Podle směrnice Evropské unie ("EU") o likvidaci elektických a elektronických výrobků 2002/96/EC platné od 13. srpna 2005 je zakázáno likvidovat "elektrické a elektronické výrobky" v běžném komunálním odpadu a výrobcí elektronických výrobků, na které se tato směrnice vztahuje, budou povinni odebírat takové výrobky zpět po skončení jejich životnosti. Společnost MSI splní požadavky na odebírání výrobků značky MSI, prodávaných v zemích EU, po skončení jejich životnosti. Tyto výrobky můžete odevzdát v místních sběrnách.

## **MAGYAR**

Annak érdekében, hogy környezetünket megvédjük, illetve környezetvédként fellépve az MSI emlékezteti Önt, hogy ...  
Az Európai Unió („EU“) 2005. augusztus 13-án hatályba lépő, az elektromos és elektronikus berendezések hulladékairól szóló 2002/96/EK irányelvre szerint az elektromos és elektronikus berendezések többé nem kezelhetőek lakossági hulladéként, és az ilyen elektronikus berendezések gyártói kötelessé válnak az ilyen termékek visszavételére azok hasznos élettartama végén. Az MSI betartja a termékvízzavételel kapcsolatos követelményeket az MSI márkanév alatt az EU-n belül értékesített termékek esetében, azok élettartamának végén. Az ilyen termékeket a legközelebbi gyűjtőhelyre viheti.

## **ITALIANO**

Per proteggere l'ambiente, MSI, da sempre amica della natura, ti ricorda che....

In base alla Direttiva dell'Unione Europea (EU) sullo Smaltimento dei Materiali Elettrici ed Elettronici, Direttiva 2002/96/EC in vigore dal 13 Agosto 2005, prodotti appartenenti alla categoria dei Materiali Elettrici ed Elettronici non possono più essere eliminati come rifiuti municipali: i produttori di detti materiali saranno obbligati a ritirare ogni prodotto alla fine del suo ciclo di vita. MSI si adeguerà a tale Direttiva ritirando tutti i prodotti marchiati MSI che sono stati venduti all'interno dell'Unione Europea alla fine del loro ciclo di vita. È possibile portare i prodotti nel più vicino punto di raccolta

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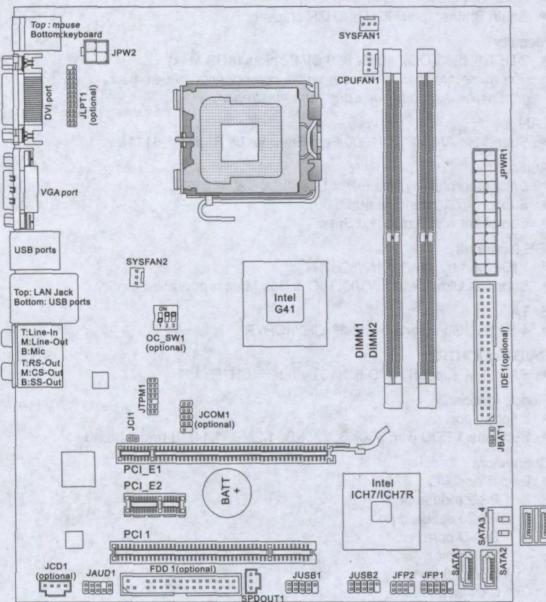
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# ENGLISH

## GETTING STARTED

Thank you for choosing the G41M-P25/ G41M-S02 (MS-7592 v6.x) Micro-ATX mainboard. The G41M-P25/ G41M-S02 is based on Intel® G41 & ICH7/ICH7R chipset for optimal system efficiency. Designed to fit the advanced Intel® Core™2 Quad/ Core™2 Duo/ Pentium®/ Celeron® processor in LGA775 package, the G41M-P25/ G41M-S02 delivers a high performance and professional desktop platform solution.

### Layout



## SPECIFICATIONS

### Processor

- Intel® Core™2 Quad/ Core™2 Duo/ Pentium®/ Celeron® processor in LGA775 package
- Support 4-pin CPU fan pinheader with fan speed control
- Support FMB 05a@95W  
*(For the latest information about CPU, please visit <http://www.msi.com/index.php?func=cpufm2>)*

### Supported FSB

- Up to 1333 MHz

### Chipset

- North Bridge: Intel® G41 chipset
- South Bridge: Intel® ICH7/ICH7R chipset

### Memory

- 2 DDR3 1333(OC)/ 1066/ 800 DIMM slots (8GB Max)  
*(For more information on compatible components, please visit <http://www.msi.com/index.php?func=testreport>)*

### LAN

- Supports LAN 10/100/1000 Fast Ethernet by Realtek® 8111DL

### Audio

- Chip integrated by Realtek® ALC888S VC2/ ALC889
- Supports 7.1 channels audio out
- Compliant with Azalia 1.0 Spec

### IDE (optional)

- 1 IDE port by Intel® ICH7/ICH7R
- Supports Ultra DMA 66/100, PIO & Bus Master operation mode

### SATA

- 4 SATA 3Gb/s ports by Intel® ICH7/ICH7R

### RAID (for ICH7R)

- SATA1~4 support RAID 0/1/10 by Intel® ICH7R

### Floppy (optional)

- 1 floppy port
- Supports 1 FDD with 360KB, 720KB, 1.2MB, 1.44MB and 2.88MB

### Connectors

- Back Panel I/O
  - 1 PS/2 mouse port
  - 1 PS/2 keyboard port
  - 1 DVI-D port
  - 1 VGA port
  - 4 USB 2.0 ports
  - 1 LAN jack
  - 6 flexible audio jacks
- Onboard Connectors
  - 2 USB 2.0 connectors

- 1 S/PDIF-Out connector
- 1 CD-In connector (optional)
- 1 front audio connector
- 1 chassis Intrusion connector
- 1 parallel connector (optional)
- 1 serial port connector (optional)
- 1 TPM connector
- 1 OC switch (optional)

**Slots**

- 1 PCI Express x16 slot
- 1 PCI Express x1 slot
- 1 PCI slot, supports 3.3V/ 5V PCI bus Interface

**Form Factor**

- Micro-ATX (200mm x 244mm)

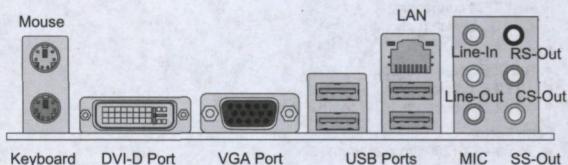
**Mounting**

- 6 mounting holes

*If you need to purchase accessories and request the part numbers, you could search the product web page and find details on our web address below  
<http://www.msi.com/index.php>*

## REAR PANEL

The rear panel provides the following connectors:



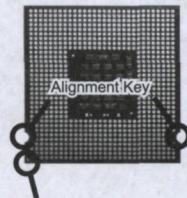
## HARDWARE SETUP

This section provides instructions on CPU and memory installation, as well as jumper settings on the mainboard. While doing the installation, be careful in holding the components and follow the installation procedures.

### CPU & Cooler Installation Procedures for LGA775

When you are installing the CPU, make sure that you install the cooler to prevent overheating. If you do not have the CPU cooler, consult your dealer before turning on the computer.

The pin-pad side of LGA 775 CPU



Yellow triangle is the Pin 1 indicator

The surface of LGA 775 CPU

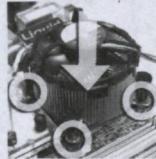
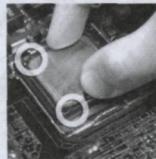
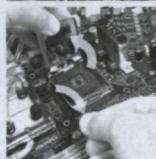
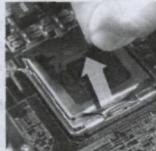
Remember to apply some thermal paste on it for better heat dispersion.



Yellow triangle is the Pin 1 indicator

Follow the steps below to install the CPU & cooler correctly. Wrong installation will cause the damage of your CPU & mainboard.

1. The CPU socket has a plastic cap on it to protect the contact from damage. Before you install the CPU, always cover it to protect the socket pins.
2. Remove the cap from the lever hinge side.
3. The pins of socket reveal.
4. Open the load lever.
5. Lift the load lever up and open the load plate.
6. After confirming the CPU direction for correct mating, put down the CPU in the socket housing frame. Be sure to grasp on the edge of the CPU base. Note that the alignment keys are matched.
7. Visually inspect if the CPU is seated well into the socket. If not, take out the CPU with pure vertical motion and reinstall.
8. Cover the load plate onto the package.
9. Press down the load lever lightly onto the load plate, and then secure the lever with the hook under the retention tab.
10. Align the holes on the mainboard with the heatsink. Push down the cooler until its four clips get wedged into the holes of the mainboard.
11. Press the four hooks down to fasten the cooler. Then rotate the locking switch (refer to the correct direction marked on it) to lock the hooks.
12. Turn over the mainboard to confirm that the clip-ends are correctly inserted.
13. Finally, attach the CPU Fan cable to the CPU fan connector on the mainboard.

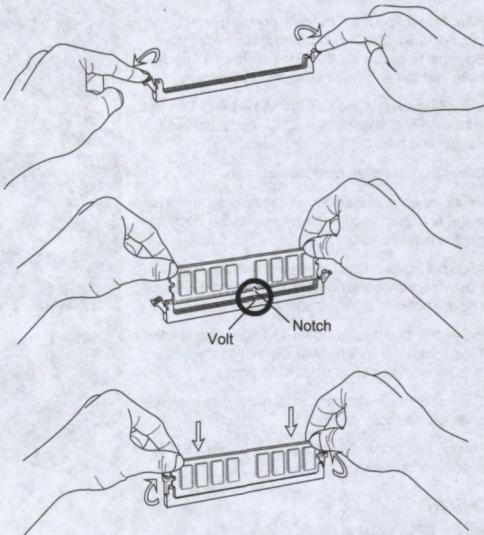


#### **IMPORTANT**

- \* *Read the CPU status in BIOS.*
- \* *Whenever the CPU is not installed, always protect your CPU socket pins with the plastic cap covered.*
- \* *Mainboard photos shown in this section are for demonstration of the CPU/cooler installation only. The appearance of your mainboard may vary depending on the model you purchase.*

#### **Installing Memory Modules**

1. The memory module has only one notch on the center and will only fit in the right orientation.
2. Insert the memory module vertically into the DIMM slot. Then push it in until the golden finger on the memory module is deeply inserted in the DIMM slot. The plastic clip at each side of the DIMM slot will automatically close when the memory module is properly seated. **You can barely see the golden finger if the memory module is properly inserted in the DIMM slot.**
3. Manually check if the memory module has been locked in place by the DIMM slot clips at the sides.

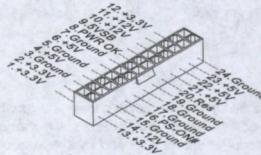


#### **IMPORTANT**

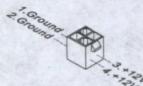
- \* In Dual-Channel mode, make sure that you install memory modules of the same type and density in different channel DIMM slots.
- \* To enable successful system boot-up, always insert the memory modules into the DIMM1 first.

**ATX 24-Pin Power Connector: JPWR1**

This connector allows you to connect an ATX 24-pin power supply. To connect the ATX 24-pin power supply, make sure the plug of the power supply is inserted in the proper orientation and the pins are aligned. Then push down the power supply firmly into the connector.

**ATX 4-Pin Power Connector: JPWR2**

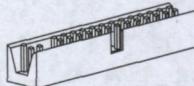
This 4-Pin power connector is used to provide power to the CPU.

**IMPORTANT**

- \* Make sure that all the connectors are connected to proper ATX power supplies to ensure stable operation of the mainboard.
- \* Power supply of 350 watts (and above) is highly recommended for system stability.

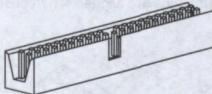
**Floppy Disk Drive Connector: FDD1 (optional)**

This connector supports 360KB, 720KB, 1.2MB, 1.44MB or 2.88MB floppy disk drive.



**IDE Connector: IDE1 (optional)**

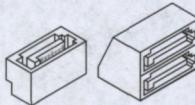
This connector supports IDE hard disk drives, optical disk drives and other IDE devices.

**IMPORTANT**

*If you install two IDE devices on the same cable, you must configure the drives to cable select mode or separately to master / slave mode by setting jumpers. Refer to IDE device documentation supplied by the vendors for jumper setting instructions.*

**Serial ATA Connector: SATA1 ~ 4**

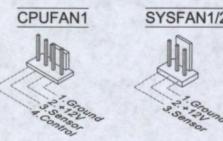
This connector is a high-speed Serial ATA interface port. Each connector can connect to one Serial ATA device.

**IMPORTANT**

*Please do not fold the Serial ATA cable into 90-degree angle. Otherwise, data loss may occur during transmission.*

**Fan Power Connectors: CPUFAN1, SYSFAN1, SYSFAN2**

The fan power connectors support system cooling fan with +12V. When connecting the wire to the connectors, always note that the red wire is the positive and should be connected to the +12V; the black wire is Ground and should be connected to GND. If the mainboard has a System Hardware Monitor chipset onboard, you must use a specially designed fan with speed sensor to take advantage of the CPU fan control.



**S/PDIF-Out Connector: SPDOUT1**

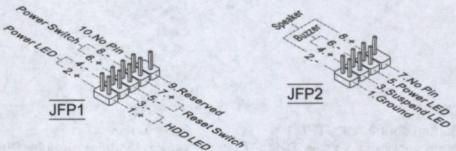
This connector is used to connect S/PDIF (Sony & Philips Digital Interconnect Format) interface for digital audio transmission.

**CD-In Connector: JCD1 (optional)**

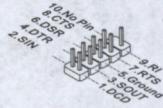
This connector is provided for external audio input.

**Front Panel Connectors: JFP1, JFP2**

These connectors are for electrical connection to the front panel switches and LEDs. The JFP1 is compliant with Intel® Front Panel I/O Connectivity Design Guide.

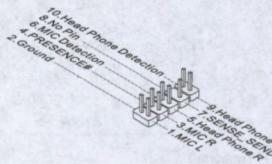
**Serial Port Connector: JCOM1 (optional)**

This connector is a 16550A high speed communication port that sends/receives 16 bytes FIFOs. You can attach a serial device.



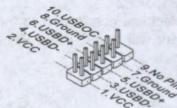
#### **Front Panel Audio Connector: JAUD1**

This connector allows you to connect the front panel audio and is compliant with Intel® Front Panel I/O Connectivity Design Guide.



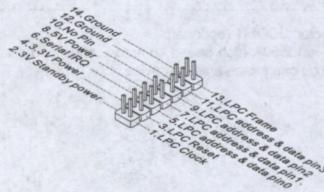
#### **Front USB Connector: JUSB1, JUSB2**

This connector, compliant with Intel® I/O Connectivity Design Guide, is ideal for connecting high-speed USB interface peripherals such as USB HDD, digital cameras, MP3 players, printers, modems and the like.



#### **TPM Module connector: JTPM1**

This connector connects to a TPM (Trusted Platform Module) module. Please refer to the TPM security platform manual for more details and usages.

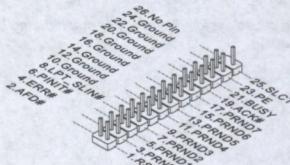


**Chassis Intrusion Connector: JC1**

This connector connects to the chassis intrusion switch cable. If the chassis is opened, the chassis intrusion mechanism will be activated. The system will record this status and show a warning message on the screen. To clear the warning, you must enter the BIOS utility and clear the record.

**Parallel Port Header: JLPT1 (optional)**

This connector is used to connect an optional parallel port bracket. The parallel port is a standard printer port that supports Enhanced Parallel Port (EPP) and Extended Capabilities Parallel Port (ECP) mode.

**Clear CMOS Jumper: JBAT1**

There is a CMOS RAM onboard that has a power supply from an external battery to keep the data of system configuration. With the CMOS RAM, the system can automatically boot OS every time it is turned on. If you want to clear the system configuration, set the jumper to clear data.

**IMPORTANT**

You can clear CMOS by shorting 2-3 pin while the system is off. Then return to 1-2 pin position. Avoid clearing the CMOS while the system is on; it will damage the mainboard.

**Overclock FSB Switch: OC\_SW1 (optional)**

You can overclock the FSB to increase the processor frequency by changing the switch. Follow the instructions below to set the FSB.



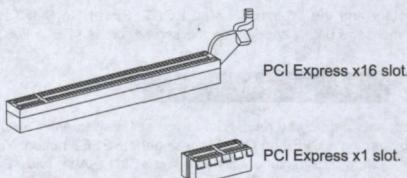
Default 200→266 MHz 200→333 MHz 266→333 MHz

**IMPORTANT**

- \* Make sure that you power off the system before setting the switch.
- \* When overclocking cause system instability or crash during boot, please set the switch to default setting.

**PCI Express Slot**

The PCI Express slot supports the PCI Express interface expansion card.

**PCI Slot**

The PCI slot supports LAN card, SCSI card, USB card, and other add-on cards that comply with PCI specifications.

**IMPORTANT**

*When adding or removing expansion cards, make sure that you unplug the power supply first. Meanwhile, read the documentation for the expansion card to configure any necessary hardware or software settings for the expansion card, such as jumpers, switches or BIOS configuration.*

**PCI Interrupt Request Routing**

The IRQ, acronym of interrupt request line and pronounced I-R-Q, are hardware lines over which devices can send interrupt signals to the microprocessor. The PCI IRQ pins are typically connected to the PCI bus pins as follows:

Slot	Order	1	2	3	4
PCI 1		INT A#	INT B#	INT C#	INT D#

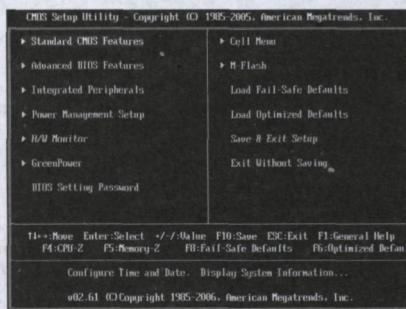
## BIOS SETUP

Power on the computer and the system will start POST (Power On Self Test) process. When the message below appears on the screen, press <DEL> key to enter Setup.

Press DEL to enter SETUP

If the message disappears before you respond and you still wish to enter Setup, restart the system by turning it OFF and On or pressing the RESET button. You may also restart the system by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys.

### Main Page



#### Standard CMOS Features

Use this menu for basic system configurations, such as time, date etc.

#### Advanced BIOS Features

Use this menu to setup the items of special enhanced features.

#### Integrated Peripherals

Use this menu to specify your settings for integrated peripherals.

#### Power Management Setup

Use this menu to specify your settings for power management.

#### H/W Monitor

This entry shows the status of your CPU, fan, warning for overall system status.

#### Green Power

Use this menu to specify the power phase.

**BIOS Setting Password**

Use this menu to set BIOS setting Password.

**Cell Menu**

Use this menu to specify your settings for frequency/voltage control.

**M-Flash**

Use this menu to read/ flash the BIOS from USB media device.

**Load Fail-Safe Defaults**

Use this menu to load the BIOS default values that are factory settings for system operations.

**Load Optimized Defaults**

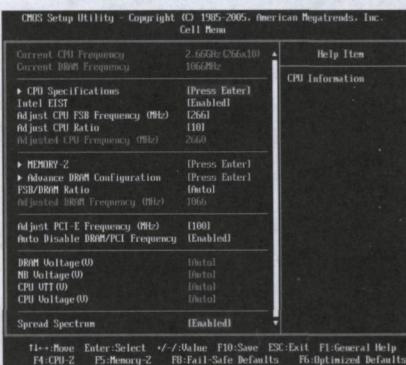
Use this menu to load factory default settings into the BIOS for stable system performance operations.

**Save & Exit Setup**

Save changes to CMOS and exit setup.

**Exit Without Saving**

Abandon all changes and exit setup.

**Cell Menu****Current CPU/DRAM Frequency**

It shows the current frequency of CPU/Memory. Read-only.

**CPU Specifications**

Press <Enter> to enter the submenu, that shows the information of installed CPU.

**CPU Technology Support**

Press <Enter> to enter the submenu, that shows the technologies that the installed CPU supported.

**Intel EIST**

The Enhanced Intel SpeedStep technology allows you to set the performance level of the microprocessor whether the computer is running on battery or AC power. This field will appear after you installed the CPU which support speedstep technology.

**Adjust CPU FSB Frequency (MHz)**

This item allows you to adjust the CPU FSB frequency.

**Adjust CPU Ratio**

This item is used to adjust CPU clock multiplier (ratio). It is available only when the processor supports this function.

**Adjusted CPU Frequency (MHz)**

It shows the adjusted CPU frequency (FSB x Ratio). Read-only.

**MEMORY-Z**

Press <Enter> to enter the submenu.

**DIMM1/2 Memory SPD Information**

Press <Enter> to enter the submenu, that displays the informations of installed memory.

**Advance DRAM Configuration**

Press <Enter> to enter the submenu.

**DRAM Timing Mode**

Selects whether DRAM timing is controlled by the SPD (Serial Presence Detect) EEPROM on the DRAM module. Setting to [Auto By SPD] enables DRAM timings and the following related items to be determined by BIOS based on the configurations on the SPD. Selecting [Manual] allows users to configure the DRAM timings and the following related items manually.

**CAS Latency (CL)**

When the DRAM Timing Mode sets to [Manual], the field is adjustable. This controls the CAS latency, which determines the timing delay (in clock cycles) before SDRAM starts a read command after receiving it.

**tRCD**

When the DRAM Timing Mode sets to [Manual], the field is adjustable. When DRAM is refreshed, both rows and columns are addressed separately. This setup item allows you to determine the timing of the transition from RAS (row address strobe) to CAS (column address strobe). The less the clock cycles, the faster the DRAM performance.

**tRP**

When the DRAM Timing Mode sets to [Manual], the field is adjustable. This item controls the number of cycles for Row Address Strobe (RAS) to be allowed to precharge. If insufficient time is allowed for the RAS to accumulate its charge before DRAM refresh, refreshing may be incomplete and DRAM may

fail to retain data. This item applies only when synchronous DRAM is installed in the system.

**tRAS**

When the DRAM Timing Mode sets to [Manual], the field is adjustable. This setting determines the time RAS takes to read from and write to a memory cell.

**tRTP**

When the DRAM Timing Mode sets to [Manual], the field is adjustable. Time interval between a read and a precharge command.

**tRFC**

When the DRAM Timing Mode sets to [Manual], the field is adjustable. This setting determines the time RFC takes to read from and write to a memory cell.

**tWR**

When the DRAM Timing Mode is set to [Manual], the field is adjustable. It specifies the amount of delay (in clock cycles) that must elapse after the completion of a valid write operation, before an active bank can be precharged. This delay is required to guarantee that data in the write buffers can be written to the memory cells before precharge occurs.

**tRRD**

When the DRAM Timing Mode sets to [Manual], the field is adjustable. Specifies the active-to-active delay of different banks.

**tWTR**

When the DRAM Timing Mode is set to [Manual], the field is adjustable. This item controls the Write Data In to Read Command Delay memory timing. This constitutes the minimum number of clock cycles that must occur between the last valid write operation and the next read command to the same internal bank of the DDR device.

**FSB/DRAM Ratio**

This item will allow you to adjust the ratio of FSB to memory.

**Adjusted DRAM Frequency (MHz)**

It shows the adjusted memory frequency. Read-only.

**Adjust PCI-E Frequency (MHz)**

This item allows you to adjust the PCI-E frequency.

**Auto Disable DRAM/PCI Frequency**

When set to [Enabled], the system will remove (turn off) clocks from empty DIMM and PCI slots to minimize the electromagnetic interference (EMI).

**DRAM Voltage (V), NB Voltage (V), CPU VTT (V), CPU Voltage (V)**

These items are used to adjust the voltage of CPU, Memory and chipset.

**Spread Spectrum**

When the motherboard's clock generator pulses, the extreme values (spikes) of the pulses create EMI (Electromagnetic Interference). The Spread Spectrum function reduces the EMI generated by modulating the pulses so that the spikes of the pulses are reduced to flatter curves. If you do not have any EMI problem, leave the setting at Disabled for optimal system stability and performance. But if

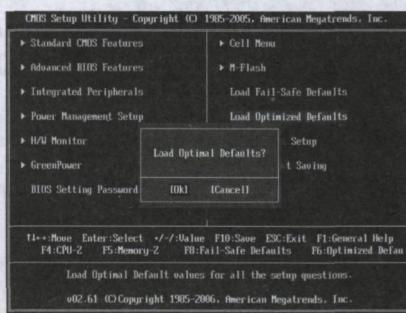
you are plagued by EMI, set to Enabled for EMI reduction. Remember to disable Spread Spectrum if you are overclocking because even a slight jitter can introduce a temporary boost in clock speed which may just cause your overclocked processor to lock up.

#### **IMPORTANT**

- \* If you do not have any EMI problem, leave the setting at [Disabled] for optimal system stability and performance. But if you are plagued by EMI, select the value of Spread Spectrum for EMI reduction.
- \* The greater the Spread Spectrum value is, the greater the EMI is reduced, and the system will become less stable. For the most suitable Spread Spectrum value, please consult your local EMI regulation.
- \* Remember to disable Spread Spectrum if you are overclocking because even a slight jitter can introduce a temporary boost in clock speed which may just cause your overclocked processor to lock up.

#### **Load Optimized Defaults**

You can load the default values provided by the mainboard manufacturer for the stable performance.



# M-FLASH SETUP

M-Flash function allows you to flash BIOS from USB drive/ storage drive (FAT/ FAT32 format only), or allows the system to boot from the BIOS file inside USB drive (FAT/ FAT32 format only). To use M-Flash, first boot/reboot the computer and the system will start POST (Power On Self Test) process. When the message below appears on the screen, press <DEL> key to enter BIOS.

Press DEL to enter SETUP

Select M-Flash in BIOS main menu and press <ENTER> key to enter M-Flash menu and the following menu appears.



Please refer to the instructions below to setup.

== BIOS Update or Load BIOS From USB drive==

## M-Flash function as

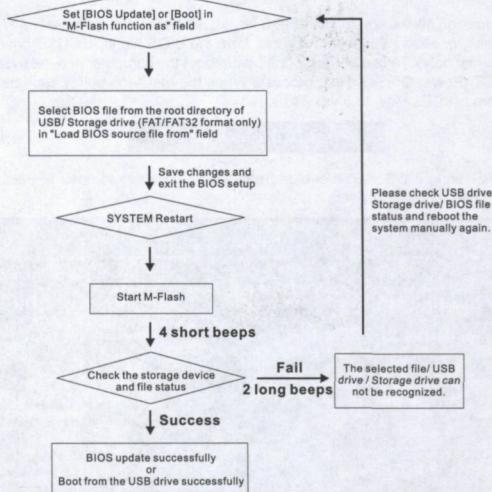
[Disabled] Disable M-Flash function.

[BIOS Update] Flash BIOS via the USB/ Storage drive directly. Update BIOS ROM chip data from selected file, which is download from official website and must be saved in the root directory of the USB/ Storage drive. It only supports particular file name, which is the official BIOS file name from us.

[Boot] After allocated particular BIOS file, system will boot from this BIOS file which saved in the root directory of USB drive. System will skip MB ROM chip data and boot with this particular BIOS inside USB drive. Note: this option is for USB drive only.

**IMPORTANT**

\* Please refer to the block diagram below about the M-Flash function.



\* Due to the special design of some graphics cards will cause dark screen during M-flash operation, and you may refer the beeps from the system to confirm the current M-flash process.

== BIOS Data Saving ==

The following fields are used to read the onboard BIOS ROM data, and save it to USB drive/ storage drive.

**Save File to Selected Device**

Please setup a specific folder in specific USB drive/ storage drive to save BIOS file from BIOS ROM chip data. Note: it only supports FAT/ FAT32 file system drive.

**Save File Name as**

Please setup a specific name for the BIOS file, which will be saved into the USB drive/ storage drive. Note: we suggest you using the official name as the default name.

**Save Extend File name as**

Please setup a specific extend name for the BIOS file, which will be saved into the USB drive/ storage drive. Note: we suggest you using [ROM] as default name.

**Start to save file**

Press "Enter" and select "OK" the system will start to save the onboard ROM chip data to the selected USB drive/ storage drive.